Appendix F

Minimum Criteria for Performance Tests

The following items must be tested. Items marked with an asterick (*) indicate that this item is not necessarily required to be tested by the vendor, but must be tested in order for the facility to meet the requirements of RHB 4.2.18.1.

MEDICAL RADIOGRAPHIC (Including veterinary facilities)

- Half-value layer (HVL) (4.3.5)
- X-ray field/light field alignment (4.7.1.3, 4.8.4)
- Exposure reproducibility (4.7.5)
- mA/mAs linearity (4.7.8)
- kVp accuracy (4.7.7)
- Timer reproducibility and accuracy (4.7.4.2.7, 4.7.7)
- X-ray beam/image receptor centering (4.7.1.7)
- Collimator light illuminance (4.7.9)
- Actual vs. indicated collimator field sizes (4.7.1.5, 4.8.6)
- Positive beam limitation function, if operable (4.7.13)
- Visual and audible indication of exposure (4.7.4.2.5)
- Capacitor discharge radiation levels, if provided (4.7.6)
- Minimum field size (4.7.15)
- Patient exposure at skin entrance, for most common exams performed at the facility (except veterinary facilities) (4.2.15.2)
- Proper function of automatic exposure control devices, including AEC reproducibility, kV compensation, and minimum response time (4.7.4.2.6)
- Grid uniformity and alignment (4.2.18.3)
- Integrity of lead aprons, gloves, and other protective clothing (4.2.10)*
- Screen-film contact *
- Actual vs. Indicated Source to Image Distance (SID), for all clinically used SIDs (4.7.12, 4.8.7)
- Beam size(s) for fixed collimation, if applicable (4.7.3)

These items must be checked upon initial installation and after any maintenance or repair that could affect its status:

- Adherence to the approved shielding plan (4.4) (Visual inspection of layout of equipment, location of exposure button, location of film, etc.)
- Minimum source to skin distance on mobile radiographic units (4.8.12)
- Proper indication of multiple tubes on units so equipped (4.7.4.2.4)

FLUOROSCOPIC

- X-ray beam/Viewed image size comparison (4.9.2.2)
- Exposure rate output measurement, using average techniques, using maximum techniques, and in high level exposure mode, if so equipped, in each mode routinely used (4.9.4)
- Image intensifier interlock with unit in park position (4.9.2.1.2)
- Primary barrier transmission (4.9.5)
- Cumulative timer function (4.9.7.1)

- Measurement of scattered radiation (4.9.8)
- High contrast resolution and low contrast performance
- Minimum source to skin distance, upon initial installation (4.9.1)
- Spot film beam size (4.9.2.3.2)
- Spot film beam centering (4.9.2.3.4)
- Spot film exposure reproducibility (4.9.9.3)
- Spot film mA/mAs linearity (4.7.8)
- Spot film timer reproducibility and accuracy (4.9.9.2, 4.7.7)
- Proper function of spot film automatic exposure control devices, including AEC reproducibility, kV compensation, and minimum response time (4.7.4.2.6)
- kVp accuracy (4.7.7)
- Half-value layer (HVL) (4.3.5)
- Cinefluorographic exposure rates (4.9.4)
- Integrity of lead aprons, gloves, and other protective clothing (4.2.10)*
- Integrity of bucky slot cover shielding and lead drapes (4.2.10)*
- Continuous indication of kV and mA during fluoroscopy (4.9.6)

RADIATION THERAPY SIMULATION SYSTEMS

- Half-value layer (HVL) (4.3.5)
- X-ray field/light field alignment (4.7.1.3)
- Exposure reproducibility (4.7.5)
- mA/mAs linearity (4.7.8)
- kVp accuracy (4.7.7)
- Timer reproducibility and accuracy (4.7.4.2.7, 4.7.7)
- X-ray beam/image receptor centering (4.7.1.7)
- Actual vs. indicated collimator field sizes (4.7.1.5)
- Positive beam limitation function, if operable (4.7.13)
- Visual and audible indication of exposure (4.5.4.2.5)
- Proper function of automatic exposure control devices, including AEC reproducibility, kV compensation, and minimum response time (4.7.4.2.6)
- Grid uniformity and alignment (4.2.18.3)
- Integrity of lead aprons, gloves, and other protective clothing (4.2.10)*
- Screen-film contact *
- Actual vs. Indicated Source to Image Distance (SID), for all clinically used SIDs (4.7.12)
- Exposure rate output measurement, using average techniques, using maximum techniques, and in high level exposure mode, if so equipped, in each mode routinely used (4.9.4)
- Cumulative timer function (4.9.7.1)
- Measurement of scattered radiation (4.9.8)
- High contrast resolution and low contrast performance
- Minimum source to skin distance, upon initial installation (4.9.1)

These items must be checked upon initial installation and after any maintenance or repair that could affect its status:

- Adherence to the approved shielding plan (4.4) (Visual inspection of layout of equipment, location of exposure button, location of film, etc.)

COMPUTED TOMOGRAPHY (CT) (Including CT treatment planning systems used in radiation therapy)

- Actual vs. indicated scan increment (4.11.1.6.3)
- Measurement of radiation output(patient dose) (CT treatment planning systems are exempt) (4.11.3.1)
- CT number calibration and constancy (4.11.3)
- High and low contrast resolution
- Precision (noise)
- Contrast scale
- Spot checks as specified by a Class IX Vendor (4.11.3.2)
- An area survey, upon initial installation
- Integrity of lead aprons, gloves, and other protective clothing (4.2.10)*

These items must be checked upon initial installation and after any maintenance or repair that could affect its status:

- Adherence to the approved shielding plan (4.4) (Visual inspection of layout of equipment, location of exposure button, location of film, etc.)

DENTAL

- Half-value layer (HVL) (4.3.5)
- Exposure reproducibility (4.5.5)
- mA/mAs linearity (4.5.6)
- kVp accuracy (4.5.7)
- Timer reproducibility and accuracy (4.5.3.3, 4.5.7)
- Visual and audible indication of exposure (4.5.4.2.5)
- Patient exposure at skin entrance, bitewing and/or periapicals (4.2.15.2)
- Mechanical support of tubehead (4.5.10)
- Integrity of pass through interlocks (4.5.11.3)
- Integrity of lead aprons, gloves, and other protective clothing (4.2.10)*

These items must be checked upon initial installation and after any maintenance or repair that could affect its status:

- Adherence to the approved shielding plan, if applicable (4.4) (Visual inspection of layout of equipment, location of exposure button, location of film, etc.)
- Minimum source to skin distance (4.5.1)
- X-ray beam size (4.5.2)
- Proper indication of multiple tubes on units so equipped (4.5.9)
- NOTE: Cephalometric units are considered medical units by the Department, and are subject to the requirements for medical radiographic units.